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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,805	06/09/2000	Frederick T. Brady	FE-00439	1713

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EXAMINER

NADAV, ORI

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 04/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/590,805

Applicant(s)

BRADY ET AL.

Examiner

ori nadav

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-- Th MAILING DATE of this communication appears on th cover sheet with the correspondence address --

**Period f r Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 22-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a first device comprising a field oxide region including a material that traps positive charge and a second device not been implanted with that material, as recited in claim 3. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 4-7, 22-25, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalnitsky (5,589,708) or Murdock et al. (5,748,412) in view of Admitted Prior Art (APA).  
  
Kalnitsky teaches in figure 2 an integrated circuit comprising a first device and a second device (column 3, lines 33-48) wherein the effective threshold voltage of the

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first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device.

Kalnitsky does not teach first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground and the first leads are electrically connected to each other.

Murdock et al. teach in figure 2 an integrated circuit comprising a first device 30 (figure 3c) and a second device (column 1, lines 16-30) wherein the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device (column 10, lines-26-45).

Murdock et al. do not teach first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground and the first leads are electrically connected to each other.

APA teaches in figure 2 first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground and the first leads are electrically connected to each other.

APA teaches in figure 2 first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground in

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Kalnitsky and Murdock et al.'s device, because it is conventional to connect a device to power and ground in order to be able to operate the device.

Regarding claims 2 and 25, Kalnitsky teaches a first device comprises an n-type metal-oxide semiconductor field-effect transistor. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a first device comprises an n-type metal-oxide semiconductor field-effect transistor in Murdock and APA's device, in order to form a diode in a well known alternative method.

Regarding claims 4 and 5, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the integrated circuit in a microprocessor that comprises a control sequencer coupled to an arithmetic logic unit, and in an arrangement of memory cells operatively coupled to an address decoder in Kalnitsky, Murdock et al. and APA's device, in order to use the device in an application which requires a microprocessor that comprises a control sequencer coupled to an arithmetic logic unit, and an arrangement of memory cells operatively coupled to an address decoder.

Regarding claim 6, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to connect the second lead of the first device to

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ground, the third lead of the first device to power, and the third lead of the second device to power in Kalnitsky and Murdock et al. and APA's device, in order to use the device in a specific application.

Regarding claims 7 and 23-24, Murdock et al. teach a first device shorts power to ground when the device has been exposed to ionizing radiation. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to short a first device's to ground when the device has been exposed to ionizing radiation in Kalnitsky and APA's device, in order to use the device in an application which requires circuit protection.

Regarding claim 22, although Kalnitsky, Murdock et al. and APA do not explicitly state that upon exposure to a sufficient amount of ionizing radiation, one device turns on before the second device and thus affects operation of the second device, these features are inherent in the devices of Kalnitsky, Murdock et al. and APA, because soft and hard devices turn on before and after regular devices, respectively. When one device is turned on, it naturally affects the operation of a second device connected thereto. Regarding the claimed limitation of a first device being a safeguard device, Murdock et al. teach a first device being a safeguard device. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use

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the first device in Kalnitsky and APA's device as a safeguard device, in order to use the device in an application which requires circuit protection.

Regarding claims 23-24, the device of Kalnitsky, Murdock et al. and APA is connected between a power and ground.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalnitsky, Murdock et al. and APA, as applied to claim 1 above, and further in view of Tursky et al. (5,294,843).

Kalnitsky, Murdock et al. and APA teach substantially the entire claimed structure, as applied to claim 1 above, except the method of forming a soft diode. Tursky et al. teach forming a first device with a field oxide that has been implanted with a material that traps positive charge when the first device is exposed to ionizing radiation and the second device has not been implanted with the material (column 9, lines 31-51).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form a first device with a field oxide that has been implanted with a material that traps positive charge in prior art's device, in order to obtain a soft diode with a well known alternative method.

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***Response to Arguments***

5. Applicant argues on page 7 that applicant uses soft circuit elements whereas Kalnitsky uses hard transistors.

The claimed invention recites two devices, wherein the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device. That is, one device is softer or harder than the second device. Kalnitsky teaches two transistors, wherein one transistor is harder than the second transistor. Therefore, Kalnitsky teaches two devices, wherein the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device, as claimed.

6. Applicant argues on page 7 that Kalnitsky does not teach that the first leads of the first and second devices are electrically connected to each other.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Kalnitsky teaches a first device and a second device (column 3, lines 33-48) wherein the effective threshold voltage of the first device is more susceptible to be



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lowered by ionizing radiation than is the effective threshold voltage of the second device, wherein APA teaches in figure 2 first and second devices comprising a first lead, a second lead, and a third lead, wherein the third lead is electrically connected to ground and the first leads are electrically connected to each other.

7. Applicant argues on page 8 that Murdock does not teach that the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device, because the soft diodes of Murdock do not need to be exposed to ionizing radiation.

Murdock teaches soft diodes having lower threshold voltage. Therefore, the threshold voltage of the soft diodes of Murdock is more susceptible to be lowered by ionizing radiation than a non-soft diode. Thus, Murdock teach the effective threshold voltage of the first device is more susceptible to be lowered by ionizing radiation than is the effective threshold voltage of the second device, as claimed.

8. Applicant argues on page 11 that figures 1A-1C depict a field oxide region including a material that traps positive charge.

Figures 1A-1C are "prior art" and do not depict a first device comprising a field oxide region including a material that traps positive charge and a second device not been implanted with that material, as recited in claim 3.

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***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

**Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette , 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722**

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and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(703) 308-8138**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached at **(703) 308-2772**.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

Ori Nadav

April 5, 2002

Steven Loko  
Primary Examiner

